DOCUMENT RESUME

ED 211 387 SE 036 074

AUTHOR	Tetlow, Wendolyn, Ed.
TITLE	Proceedings of the Special Needs Conference (Dingmans Ferry, Pennsylvania, August 7-11, 1981).
INSTITUTION	Pocono Environmental Education Center, Dingmans Ferry, Pa.
SPONS AGENCY	National Science Foundation, Washington, D.C.
PUB DATE	81
NOTE	90p.; Contains photographs which may not reproduce well.
AVAILABLE FROM	Director, Pocono Environmental Education Center, R.D. 1, Box 268, Dingmans Ferry, PA 18328 (no price quoted).
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	*Adolescents; Conferences; Disabilities; *Environmental Education; Outdoor Activities; *Outdoor Education; *Physical Disabilities; *Program Descriptions; Science Activities; Science Education; Science Instruction; Secondary Education; *Secondary School Science

ABSTRACT

Prompted by the United Nations' International Year of Disabled Persons, personnel from environmental field centers and related facilities attended the Northeastern Conference on Outdoor Science Education for Physically Handicapped Adolescents. The two major purposes of the conference were: (1) to provide information and skills to environmental and science educators which will be of value in working with physically handicapped adolescents in outdoor science programs, and (2) to improve the quality of science education disseminated at outdoor centers and environmental education facilities so that it is accessible to physically disabled youths. Items compiled in these conference proceedings are a keynote address on society's low expectations, the introductory activity which involved action socialization experiences, one panel discussion on the handicapped in science and another on mainstreaming, 28 varied concurrent sessions, conference overview, evaluation, and lists of exhibitors and participants. Some of the session topics include funding, transportation, facility design, health needs, gardening, canoeing, staff training, and different curriculum materials and activities focusing on science and environmental areas. (Author/DC)

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Special Needs Conference 1981

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P R O C E E D I N G S

O F T H E

S P E C I A L N E E D S C O N F E R E N C E

Dingmans Ferry, Pennsylvania

7 - 11 August 1981

The Conference was hosted by the Pocono Environmental Education Center (PEEC) in Dingmans Ferry, Pennsylvania. PEEC is a regional environmental study center operated by Keystone Junior College in La Plume, Pennsylvania in cooperation with the National Park Service. This conference was funded by a grant from the National Science Foundation's Information Dissemination in Science Education Program.

These Proceedings were edited by Wendolyn Tetlow and the Steering Committee of the Special Needs Conference. For additional copies, and for further information about the Special Needs Conference, contact Director John J. Padalino at the Pocono Environmental Education Center, R. D. 1, Box 268, Dingmans Ferry, Pennsylvania, 18328.

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Introduction

The General Assembly of the United Nations proclaimed 1981 as the International Year of Disabled Persons. One direction at the Pocono Environmental Education Center (PEEC) during this special year was to implement programs which encourage disabled adolescents to experience science outdoors.

With support from the National Science Foundation's Information Dissemination for Science Education program, Keystone Junior College convened the five-day Northeastern Conference on Outdoor Science Education of Physically Handicapped Adolescents at PEEC with two purposes in mind:

- to provide information and skills to environmental and science educators which will be of value in working with physically handicapped adolescents in outdoor science programs, and

- to improve the quality of science education disseminated at outdoor centers and environmental education facilities so that it is accessible to physically disabled youths.

This working conference afforded opportunities for key personnel from environmental field centers and related facilities in the Northeast to learn about the special needs of this group of young people and the ways in which programs have been adapted to meet them.

In order to ensure that ideas, information, and recommendations generated by the conference are available for reference, we bring you these conference proceedings.

The conference steering committee and project staff trust that we are sharing with you a helpful tool in the effort to adapt outdoor science programs and facilities to meet the needs of disabled adolescents.

John J. Padalino
Project Director

Photo by
Sheila Lantz

"As we work together and help each other to be the people we want to be, in spite of our limitations and the low expectations of others, I feel that we become stronger, more competent people who are capable of achieving our potentials."

Dr. David Hartman

KEYNOTE SPEAKER:

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Society's Low Expectations

It is quite an honor to be part of this conference, partly because it is always a pleasure to leave the city and come up to the mountains. The main reason is because of my strong concern about bringing science to the disabled individual. As was mentioned, I am presently a psychiatrist in a rehabilitation center, but I guess I'm still getting used to being a physician. The other day I was walking down the corridors of the hospital and heard voices saying, "Yo, Doctor, watch it." I was sure they were talking to some distinguished gentleman in a white jacket, so I just kept right on walking down the hall. Then I heard, "Oh, no, Doctor." And with that I plowed into about twenty stacked bed pans--fortunately, they were empty.

It was about eighth or ninth grade that I first began thinking of going into medical school. To my surprise, the major barrier I had to deal with was not the simple lack of sight, but rather society's low expectations of what I could do, the disabled individual.

For years society has had low expectations of what women can do. It was the assumption that if you were a woman, you should be barefoot, pregnant and in the kitchen. Today those attitudes are changing and women are entering the professions, and contributing a great deal. Blacks have also been told they shouldn't enter various professions, but today that, too, is changing, and they are entering professions and contributing a tremendous amount. The same thing has been true of the disabled individual. The assumption is that if you can't hear, or if you can't see, you should be isolated, put aside; you are probably, in society's eyes, pathetic, depressed, hopeless, and helpless. The best example of society's lowest expectations is the blind beggar. The blind beggar is someone who stands on the corner, looks hopeless, helpless, and pathetic, and, in fact, gets paid to fulfill society's role of the disabled individual.

When I was applying to medical school, I had contacted a gentleman who works for the Agency for the Blind in Pennsylvania. I said to the man, "You know, there must be some way we can get the blind beggars off the streets and into productive jobs so they'll start feeling better about themselves." His answer was that it is very hard to compete with their salaries. I said, "What do you mean?" He said many of them are making $300 a week, four hours a day, five days a week. I wondered why I was going to med school! If my chosen career ever falls through, however, I'll always have a backup. I happen to be a certified, classified, kidney-tested, licensed basket weaver. When I was in sixth or seventh grade, I was at a school for the blind. While there, I was required to study basketry. This infuriated me. There must be something more practical, I thought. The answer to my question was that if my chosen career ever fell through, I would always have a backup--what confidence that gave me!

Society has so many myths about the disabled individual. There is the assumption that if you can't see, you can't speak the language. My wife and I will go to the drug store, and I'll lean over the counter to ask for something but the lady behind the counter will say, "Uh, Miss, what does he want?" Fortunately, my wife can speak my language. She whispers in my ear, I whisper back, and she translates--I don't know what I'd do without her!

When I was in high school I had a German teacher who was very concerned about my being in class. He was convinced that because I couldn't see, I would never learn German. Consequently, I've always been worried about the blind student in Germany. I guess they learn English first, then it is translated into German!

The tragedy of these low expectations is that too often they become self-fulfilling prophecies. Let me use an illustration. In college I was your basic gourmet cook. I could cook canned ravioli, spagetti--it was darned good. One day I picked up a can of Campbell's Tomato Soup and took it into the kitchen and poured it into a pot. As I started to mix it up with some water, in came a workman. The workman was amazed: "Wow, you're cooking all by yourself?" I said, "Yup, yup." He then said, "Well, you sure do well as a blind boy. You can't see at all?"

"No," I said, "I lost my sight at eight." "Wow, can I help you?" he asked. Well, there was no way I was going to let him help me. But then it hit me as I was warming the pot--there was more soup in the pot than would fit in my bowl. Now I'll tell you a secret. When I'm at home and I need to pour something into a glass, I put my finger over the lip of the glass and I feel the fluid coming up. (If you're ever at my house, make sure I have washed my hands.) In any case, I was thinking maybe I could try that, but then I remembered that the soup would be hot and I would probably burn my finger off. So I thought I would just take a chance. I picked up the pot, went over to the bowl, and poured. To this day, I'm convinced that God reached down and put his finger in that bowl. The soup came right up to the edge and STOPPED. Boy, was the workman impressed. "Wow," he said, "You sure do well as a blind boy." So I picked up the bowl, walked over to the table and put the bowl down . . . I, uh, misjudged where the table was. It never even touched the table! The workman came over and picked up the bowl and handed it to me and said, "There is not much left in the bowl!"

I think that if it hadn't been for the anxiety and the pressure I felt, I may not have made a mistake. Or, I may have been humble enough to ask for help when I really needed it. The fact is, the low expectations society have too often become self-fulfilling prophecies.

I think the major force that helped me overcome some of these low expectations was the attitude of my family. My Dad's attitude is: you never know if you can do something until you try. He feels that the only way anyone knows what you can do is to experiment. He and my mother felt that the only way they should raise me was to let me pursue my interests. Too often, disabled individuals are given a list of ten things they can do: "Now, this is a list of things that blind people can do--which one do you want to do?" That's just so much baloney. It's crucial that we let disabled individuals choose what they want to do. Then we should help them pursue that particular activity.

For example, when I was about twelve or thirteen, everybody in the neighborhood was getting bows and arrows. I thought maybe I'd like to try being an archer, too. Of course, everyone in the neighborhood was a little concerned about having a blind Robin Hood running around, but my parents weren't. They sat down

with me and figured out a way that I could shoot arrows safely. We went out on a big field and set up a target. In front of this target was a bell with a long string that extended from the bell to my Dad about twenty-five feet away. Dad would ring the bell, then I would shoot the arrow at the place where I heard the sound. In that way I was able to experience what it was like to shoot a bow and arrow.

When I went away to college I was fortunate enough to run into professors who shared my parents' attitude. They felt that the only way they, or anybody else, would know if I could handle biology courses was to let me experiment.

Anatomy. In anatomy my professors figured out a way in which I could sit down with another student. The student would dissect the various structures, then explain what the various structures were--their functions, and so on. In this way I was able to learn anatomy. And interestingly enough, my colleague, the student who helped me, got very high grades. I think that was because he had to learn the material for himself and then had to teach it to me.

Histology. As many of you are probably aware, histology is the study of microscopic anatomy and is studied through a microscope. Naturally, you can't see it, so you can't experience it by touch. In this field I sat down with a professor and he described to me what he was seeing through the microscope. I then substituted a mental image for the visual image that other students experienced.

The third course that I adapted to was physiology. Again, I sat down with a lab partner and he told me what experiments were going on, and the various results he was getting. The problem there was that I wasn't able to experience what was going on. I wasn't able to do it, and I wanted that experience. So I went to the professor and said, "There must be some way I can be involved in the laboratory work." The next time we got together, we happened to be studying my favorite subject--the digestive systems of a cockroach. My professor sat down with me and got me involved in the study by having me help take out the digestive system of the cockroach. I must say, it wasn't very upsetting, but I really felt involved in the experiment because I was actually a part of it.

In my senior year it was time to apply to medical school. Again, to my surprise, the vast majority of schools had their low expectations of what I could do as a disabled individual. Most of them didn't even give me an interview. They didn't even take the time to discuss with me the ideas I had about how I could handle a medical school curriculum. As you know, there was one school in Philadelphia, Temple University School of Medicine, that was willing to take the risk. They felt that the only way they, or anybody else, would know if I could learn medicine, was to give me a chance. That took a lot of courage on their part because they had a lot to lose, but they were willing to risk it. Temple looked at me to see what my strengths were. So often when we see a disabled individual we see what their limitations are, what they can't do. We forget to look at their strengths, their ways of coping, their positive attitudes. By evaluating my strengths, they felt that I might overcome my lack of sight.

During my first two years in medical school I implemented many of the techniques I learned in college, and so went on to study anatomy, histology, and physiology, and so on. During the second two years things were a little different. I was in the hospital working with patients, and had to develop new techniques. First, in evaluating a patient you have to take a good history. To my surprise, I learned that 85% of a diagnosis made by a physician is based upon a good history. The rest of the evaluation is often confirmatory to the history. Naturally, you don't need sight to take a good history. I found that I could take a good history simply by being well versed in the various medical areas. The second area is the physical examination. To begin with, my professors were very concerned because they thought physical examinations depended a lot on sight. For instance, one resident said to me, "I would like you to examine this woman and come back and tell me what you found." So I went and did my physical examination. I came back and said it was a normal physical examination, but there seemed to be a paucity of breast tissue, and I wondered if this was significant of her hormonal deficit. The resident thought a moment and then said, "Are you sure she wasn't tricking you?" And I said, "What do you mean?" He said, "Well, maybe she had you feeling her belly button instead." You know, to this day, I'm convinced that the resident must make love with the lights on!

I must admit that there are many areas of the physical examination that do depend on vision. What I did, however, was to use a nurse or colleague to describe those areas that require a visual examination--the eyes or the ears, for instance. I think, though, that most of the physical examination can be conducted by touch, and by listening, and by thinking. It doesn't take as much sight as you would think it does.

The laboratory work I have been able to adapt to by depending upon the specialist. This is the same way any psychiatrist handles laboratory work. If I see a patient who has a cardio problem, I have an electrocardiogram done. Then I refer him to a cardiologist to have the electrocardiogram read. If I have a patient who has chest difficulties, I have a chest x-ray done, and then refer him to the radiologist who then reads the x-gram. This is not much different than most physicians. We rely on the specialist to tell us what is found in special studies.

Finally, surgery. I remember when I was in medical school, there was a medical student who said, "Dave, there is no way you're going to do surgery--you can't get through medical school because you just can't do surgery." My Dad's attitude was: "If he needs to do surgery, he can do it on me." I often think that that's such an incredible example of a positive attitude toward a disabled individual. Well, much to my Dad's relief, I didn't actually have to do surgery on him. But, I did have to learn when it was needed, and when it was not, and I got dressed in a gown, and felt what was going on, and what was not. I learned to appreciate it, and learned a great deal without actually having to do it.

After leaving medical school, I went into an internship. Many people have asked me how patients responded having me, a blind person, as their physician. I always like to share this story. I was working with an elderly woman in a rehabilitation unit, a very lovely woman who had weakened limbs. Her reason for being there was to strengthen her lower extremities. One day she was sitting in a wheelchair in the hall (I had been working with her for several weeks at this point). I was at the nurses' desk and thought, gee, I need to get something from my office down the hall. So I walked down the hall toward my office and

accidentally bumped into the patient's wheelchair. She said, "Excuse me, Sonny, watch it, you're going to hurt yourself." I thanked her for the advice, and made sure I hadn't hurt her, then I went down to my office. But on the way back toward the nurses' desk, I forgot she was there, and ran into her again. She very kindly reminded me that she was there by saying, "Sonny, you better be careful because you're going to hurt yourself if you keep running into me." She assured me she was okay, so I went back to the nurses' station. Then I realized, oh no, I had forgotten something else in my office, so I raced back down the hall, and sure enough, forgot she was there, and plowed right into her for the third time. This time she said, "Do you mind if I ask you a personal question, Sonny?" "No, what," I said. She said, "Do you have a little trouble seeing?"

Unfortunately, not all my patients were that oblivious to my lack of sight. As I started my internship, patients would often confront me with that irritating comment: "What can you do for me, you're a blind doctor! What do you know about medicine, you can't even see my rashes." And I would stand there stuttering, not knowing what to say, but saying, "Well, don't worry, I'll be a good doctor." It was a tough few months.

As time went on, however, I suddenly realized that those bothersome questions were no longer being asked. The patients stopped asking me if I was able to be their doctor. They just accepted it. I became aware that as I became more confident in my ability to be a good physician, my blindness was not going to be a hindrance. The patients began to believe in me. They became confident in my ability to take care of them.

As you know, I am presently a psychiatrist. The area of psychiatry fascinates me because it deals with the quality of life. So much medicine today deals with increasing longevity, increasing quantity of life, which is good and important, but too little of medicine today deals with the question of the quality of life: is that extra amount of life worth living? And that's what's exciting about psychiatry and rehabilitative medicine--it deals with quality of life.

I'd like to close by discussing the way I view my own lack of sight in terms of the rest of society. I strongly feel that

just because I can't see--or someone can't hear--I'm really not very different from someone else. I, as a disabled individual, and you as an able-bodied individual, are really not that different from one another. When I was applying to medical school, I had an interview at one of the schools in the northeast. A medical student there confronted me with this question: "Dave, you know, even if you do become a physician, you will always be known as the blind doctor. How will you cope with that?" I thought about it a moment and thought, you know, he is right, I will always be known as that blind doctor. Then it occurred to me that no matter who the physicians are, they all have disabilities in one form or another. Some doctors are M.D. Fumble Fingers, some doctors are M.D. Poor Bedside Manner. The important thing is, not that we have disabilities, but how we deal with them. The physician who is M.D. Fumble Fingers shouldn't become a surgeon. Or, the one who is M.D. Poor Bedside Manner shouldn't become a psychiatrist. In general, in some way or another, I think we all have disabilities. Some of us are overconfident, or shy. And some of us who never have any difficulties in our life--well, that may be a disability in itself. The important thing is not do we have a disability, but how do we deal with it.

One summer I was working at a camp. It was a really hot day and everyone was allowed to go in the pool all at once. A friend of mine came up to me and said, "You know, Dave, I very seldom feel sorry for you, but today I do." And I said, "How come?" He said, "There are so many fine women in bikinis out there and you can't see them." And I admit I did feel sorry for myself. So, we all went swimming, and after the swim we got out, and I pulled my friend, Wayne, aside and said, "You know, Wayne, I very seldom feel sorry for you, but today I do." And he said, "Why?" I said, "Well, I've never bumped into so many fine looking women in all my life."

I think that most of us who are most disabled don't know that we have disabilities. Those of us who are least disabled are those of us who can turn our disability into an advantage. As we strive to be the people we want to be, in spite of the low expectations of others, and in spite of our own limitations,

several things happen. First, society is enriched as it is forced to accept greater individual differences. Second, we personally grow in the struggle. Let me illustrate this final point by a short story in biology. The story goes that as a chicken develops in an egg--at the point when it is ready to break out of the shell and become independent--it has to go through a very difficult struggle to break through that hard encasement of the shell. It must use its beak and claws, and every ounce of strength it has. Finally, after much fighting and struggling, it breaks the shell and emerges. It is so exhausted, it sleeps for several hours. When it awakes, it is then able to deal with the problems of life. The other side of the story goes that if we crack the shell for the chicken to make it easier for it to break out of the egg, that particular chicken will not fare as well, and may die during the second day of life because it didn't have to face the enormous struggle to break out. Somehow, that battle prepares the chicken for the stresses of life.

As we work together and help each other to be the people we want to be, in spite of our limitations and the low expectations of others, I feel that we become stronger, more competent people who are capable of achieving our potentials. Thank you very much.

INTRODUCTORY ACTIVITY:

Jim Merritt
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Action Socialization Experiences

Action Socialization Experiences are short problem solving situations involving physical obstacles in the outdoors that force members of a group to work together. A.S.E. was developed at the New Jersey School of Conservation to help incoming groups to think and work as a unit. It is an ideal activity to use with the disabled with little or no modification.

Since A.S.E. builds on the interdependence of people in small groups, it is quite natural that it be used to help the able-bodied and the disabled work together. The concept of helping someone else is implicit in each problem. Some individuals have obvious disabilities, but it is important to remember that everyone has weaknesses. In this activity all participants have not only the responsibility for capitalizing on their strengths by helping, but also for being open to accepting help from group members. The person who is disabled may be able to give as much or more help to the group than the able-bodied participants.

Since A.S.E. has been used at the Pocono Environmental Education Center for the past ten years, it seemed appropriate to use it to introduce conference attendees to the center and to each other. However, the standard procedure was not followed. To help set the tone for the Special Needs Conference, the activities remained the same, but half the participants were blindfolded. The conference participants were thrust immediately into the role of either helping or being helped. Sighted group members helped blindfolded teammates get safely back on the ground after they had scaled a seven-foot-high horizontal beam. Those who could not see had a better feel for balance while trying to place all group members on a tippy teeter totter. Everyone could help boost teammates through a tire suspended four feet above the ground.

In the wrap-up, those persons who had not been blindfolded were informed that they had helped too much. In their eagerness

to solve the problems, they had often neglected to get input from the members of the group who could not see. It was apparent that in A.S.E., as in many other situations, disabled persons are not given the opportunity to do things for themselves. Those of us who work with special populations must be aware of the tendency to do too much for the physically disabled. Instead, we must help the disabled achieve as much independence as possible. In this way they can be better integrated into the society in which they live.

Action Socialization Experiences

Photo by Wendolyn Tetlow

PANEL DISCUSSION: The Handicapped in Science

In this discussion panelists responded to questions from conference participants regarding science curricula for the handicapped, the problems of making facilities more accessible to the handicapped, and problems of the handicapped student in science. Jeff Himmelstein, Science Consultant, was the moderator. Panelists are listed alphabetically.

Miss Terry Derham
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First, I would like to thank everyone who gave me this unique opportunity to express my opinions about facilities for handicapped people in the outdoors. I've never spoken in public to a group before so please try to bear with me if I'm somewhat nervous.

I'll start by giving you a little background about me. I was born with cerebral palsy and congenital hip disease. Unfortunately, due to my hip problems, my CP was not diagnosed for almost a year. My parents were never given the exact extent of my cerebral palsy until I was five years old, and by the time I was enrolled in school I was a year older than those in my first kindergarten class. It was then that I started at Widener Memorial School for the Physically Handicapped, where I am now a twelfth grade honor student, considering science as a career.

Now I would like to talk about some examples of problems that I personally have had to face in the outdoors, and what I feel would have made them more pleasant experiences for me.

As everyone here already knows, sometimes even a door can be a giant problem to a person confined to a wheelchair. Sometimes, however, there are other barriers which are worse than doors, and, yet, they go unnoticed because people who aren't handicapped have no problem encountering them. These barriers can be curbs, steps, unpaved streets and just plain grass or dirt. Dirt has

become one of my pet peeves, and I'd like to tell you why. The ocean is an almost untouched treasure of scientific information, and recently I was almost banned from it because of dirt and poor planning.

For the past few summers I have been fortunate enough to visit Brigantine, New Jersey. Although it is difficult to navigate the sandy beach in a wheelchair, it can be done with some assistance. I love the beach and the ocean, and for this reason I was quite dismayed one year when, at the street entrance to the beach, huge hills of dirt had been erected. Apparently, the City Fathers of Brigantine did not know that handicapped people had been let out of the closet.

People who can walk have no difficulty in climbing these hills; however, you should see my poor brother trying to pull my wheelchair up and over them. I would think that with the same money it took to push those hills into place they could have also installed inexpensive wooden planks to form some type of a ramp similar to those at other Jersey beaches. I'm sure that if someone in the planning department had been advised by a wheelchair bound person, this one problem would not exist. It doesn't take that much money or time to make nature accessible to the handicapped--only a little foresightedness and care.

The Schuylkill Valley Nature Center is a perfect example of a progressive institution that has taken steps to aid handicapped people in the outdoors. Schuylkill Valley Nature Center has made the forest around the northwest section of Philadelphia as accessible to handicapped people as it is to nonhandicapped by the installation of just a few paths. Nature can be studied and enjoyed by future handicapped scientists if people would start planning with the handicapped in mind like Schuylkill Valley Nature Center does.

Handicapped people can contribute to marine biology, geology, archeology, and any number of outdoor sciences. We have the brains. We just need the accessibility so that field research is made a little easier. This can be done with proper planning.

Jeff Himmelstein
Delta Education
4 Norfolk Avenue
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When I agreed to chair this panel I had to step into the role of thinking about being disabled, but I can only tell you about my own problems with being disabled. You see, I have two disabilities. One is very obvious--I'm deaf. The other is that I have a great deal of trouble getting up in the morning, and that sometimes creates a lot of trouble. For instance, I was happy that it rained this morning because that meant that I didn't miss the bird walk!

As far as my deafness goes, I can't tell you when I lost my hearing and I can't tell you how I lost my hearing because I simply don't know. Many people refuse to accept the fact that I'm deaf because I speak very well, and that has presented a serious problem for me. My hearing is 94 decibal loss, which means that, technically, I am considered to be profoundly deaf.

I just want to take a few moments to talk about deafness--not that it's any more special than any other disability, but is represents a far more serious problem than most people are aware. Persons who are deaf suffer from a deficit of language, meaning that the whole notion of conceptual development is an entirely different problem for them than for someone who has another disability. This is not to minimize other disabilities, but rather to point out that the conceptual development in a hearing impaired individual is going to be at an entirely different level than from one who is, for example, orthopedically disabled. We're talking now about language deficit, not speech deficit--the information coming in.

So how do we deal with this disability? How do we get the information across? As you noticed, I introduced my wife, Linda Himmelstein. She is in her internship at Union College in New Jersey as an interpreter for the deaf. She has been doing all of my interpreting. My problem is that I can't hear in large groups, especially when the lighting blocks the view of individuals speaking from the audience. Also, I can't see their lips, and their voices are lost in the distance. By having an oral interpreter, I can simply look at Linda and read her lips. The idea

is that by making the accommodation, I can function because I can see the information. But if I were a person who needs sign, as opposed to oral, then I would have someone who is a sign interpreter. I emphasize the difference because it is important for you as resource people, as center directors, to be aware of the fact that just requesting an interpreter may not be appropriate. You must take it one step further and find out what the specific needs are. What I am suggesting is that if you ever have a conference, or you are ever having a group coming to you, and you know hearing impaired persons are among them, then it behooves you to take the initiative to find out what their needs are.

Also, you should be aware of the Registry of Interpreters for the Deaf. The national headquarters are in Washington, D.C., and almost all states in this area have a chapter. This is a resource that will help you in dealing with the hearing impaired.

To get back to me, I turned to the outdoors--the more I think of it--because it was an easy thing for me to do. I happen to be highly visual. I really enjoy going out and looking for things, for birds, frogs, and so on. But it was part of my coping strategy. By going out into the woods, I didn't have to deal with people I didn't understand. And as I grew older, the more I continued to look for things and to enjoy them, the more they became a part of my lifestyle. Even to this day, for example, if I come across a little dirt road somewhere, my curiosity will tell me to pull off, to explore, to find things. And still, as time goes on, I want to share these discoveries. My most rewarding experiences as a biology teacher have been those times when I have been able to take kids outside and share with them the things I find.

And that's what you have been hearing here at this conference: the more we get kids out--all kids, all people--the more we establish an ethic of nature, conservation, outdoor education. The more we do this, the better teachers we become, because the ultimate objective in teaching is sharing the good things we have with those who may not have them--and certainly with those who have a special need for them.

Shirley Smith
2237 Charles Street
Glenside, PA 19038
Widener Memorial School for the
Handicapped

I am Shirley Smith, wife, mother of two teenaged daughters, Girl Scout Leader, Sunday School teacher, and a Special Education teacher with a desire to encourage my physically handicapped students to develop an understanding and appreciation of our natural environment. Incidentally, I am also handicapped. I have learned through many experiences that being handicapped need not be a deterrent to involvement in life--particularly in the great outdoors. The general public is becoming more aware of the special needs of the handicapped in our society. One example of this is the Special Needs Conference.

How have I gotten to where I am now? My own interest in nature began as a child living on a farm. When I was 12 years old, I contracted polio and was sent to the "big city" (Philadelphia) for rehabilitation and to complete my education. Even though I had extensive physical therapy, I did not regain the full use of my legs, and soon learned that I would need crutches and braces for walking. During this adjustment period I gained a new perspective on the life of a handicapped person. I discovered that a handicapped person could become a productive member of our society by seeking realistic career goals. I also learned that I could still find enjoyment in the great outdoors.

I attended an inner city university to become a special education teacher. During the summer I worked as a camp counselor for handicapped children. Upon graduation from college I married Fred, who also happens to be handicapped, and began my career at the Widener Memorial School for Handicapped Children in Philadelphia. I was a traditional teacher, but it was also important for me to bring nature inside, and take the children outside to enjoy nature.

After teaching for several years, Fred and I decided to have a family, and now we have two lovely daughters. Transmitting a love and respect of nature is not always easy in our technical

society. We are fortunate to have a home in the suburbs adjoining a natural field and forest. Our daughters had a backyard to learn about the interrelationship of man and nature. We visited nature centers and parks, and enjoyed wildlife film series. As a family we discovered camping and spent our summers learning about nature and enjoying the great outdoors.

When the girls were in school, I returned to teaching at the Widener School. I became acutely aware of the lack of understanding and appreciation of nature by inner city handicapped adolescents. This seemed to be the result of limited experience with the natural environment. I tried to expose my "worldly" teenagers to the world of nature. We took trips to nature centers, planted plants, and brought animals into the classroom.

Later, I discovered the Schuylkill Valley Nature Center and took an ecology course for special education teachers. Through many acclimatization activities, we learned about the field, pond and forest. Using these activities in my class, my students became "turned on" to nature. We took several trips to the Nature Center which culminated in an overnight camping trip. The trip was made possible through the support and encouragement of the Nature Center staff, and through the staff and able-bodied teenagers of a special school. The center has adapted its facilities to meet the special needs of the handicapped. I took ten handicapped students (four in wheelchairs) to camp for the first time in the great outdoors. The trip was a success far beyond my own expectations. As we were preparing to leave on the trip, one student remarked, "If we can pull this one off, we can do anything." We did "pull this one off," and hopefully this will give my students the confidence to help overcome their handicaps and climb their own personal mountains.

CONCURRENT SESSIONS:

The following summaries are listed alphabetically according to the presentors' surnames. If you would like further information regarding these sessions, please contact the presentors directly.

Thomas P. Benjamin
Director of Development
Zoological Society of Buffalo
Buffalo, NY 14214

Funding for the Handicapped in the 1980s

The search for program funds in the 1980s will be difficult and frustrating, particularly for those who are uninformed. The mass media presents only a picture of doom and gloom which tells the novice there is no possible hope for program funding. To the professional, the future poses a challenge to be creative and tenacious. More funds will be available in the 1980s than ever before in the history of the United States. It's a matter of seeking them out.

In 1980, for the first time in history, corporate donations exceeded foundation grants. Individuals gave more than all other sources, so the future looks bright. The Republican tax package approved by the House and Senate could produce an additional $5 billion in donations over the next five years. A new tax law in New York State will allow individuals to receive tax credits for time donated to nonprofit agencies. The potential for increases in future funding is considerable and will go to the agencies and programs that are best prepared to take advantage of changing giving patterns.

The basics of fund raising will not change. The agency that presents its case well and follows a logical solicitation pattern will be the winner. The presentation of the case for support and the proper follow through are essential. For the most part, without these elements, solicitation efforts will be doomed.

The future belongs to the agencies that are flexible enough to adapt themselves to new funding sources and to effective marketing.

Terry Boyle
Transportation Coordinator for the New Jersey Transit Corporation
Department of Policy and Capitol Development
P. O. Box 1009
McCarter Highway and Market Street
Newark, NJ 07101

Steve Janick
President, Tri-State Regional Planning Committee
Member of the New Jersey Transit Corporation Public Advisory Board

Transportation for the Handicapped and Elderly

Participants in this session were shown the Urban Mass Transportation Administration (UMTA) film that presents four approaches to providing transit services to elderly and handicapped persons.

Following the film, Terry Boyle and Steve Janick discussed different approaches, new designs and concepts in transportation for the disabled. Bus, rail, and feeder services were mentioned, as was the New Jersey Transit 504 Citizen Advisory Committee.

Joe Bruno
A. Harry Moore Camp
Branchville, NJ 07826

Edmund J. Okstel
Retired Vocational Rehabilitation Counselor
1718 Richmond Road, Apt. 1E
Staten Island, NY 10306

What Do You Want To Be When You Grow Up? A Discussion of the Sociological Factors Affecting the Disabled Individual's Lifestyle and Life Chances in Our Society.

Joe Bruno. An individual can have a variety of illnesses and diseases but not be disabled. What causes disability then? Disability can be seen as a constellation of functional limitations manifested as limits either in physical and/or mental functioning. These limitations have sociological parameters as well. For example, physical disability can be seen as the lack of physical mobility, but this in turn impedes the individual from actively participating in the various important roles in life; for instance, having a

family, getting a job, enjoying leisure activities, and getting an education, and so on. If you can't drive a car, climb stairs, or get over curbs, you are easily barred from the many activities of daily living. There are many disabled persons who are employable but can't get to work. This blocked mobility has far reaching consequences for disabled individuals in what it asks in terms of their role adjustments.

Socialization of all individuals in society can be analyzed primarily by looking at child-rearing and educational practices--the family and the school. Whether persons become dependently handicapped in their adult lives, or independently disabled persons, depends upon the interactions and subsequent personality development in their early years. Developing risk-taking and other independent behaviors is not achieved by a crutch, brace, or motorized wheelchair, but is controlled by one's positive self-concept.

Transition: Film--A Different Approach

Edmund J. Okstel. It might be difficult for some people to realize that handicapped people grow up and that they have the same desires and needs as everyone else! Maybe, instead, it should be said that if handicapped people are allowed to grow up, they will become adult people who happen to be handicapped.

So called adult camps seem to be little more than children's camps for older people. By keeping campers "kids," staff and other professionals do not have to have new ideas for camp programs, do not have to develop different procedures that relate to adult campers, and do not have to learn new skills for relating to adult campers in adult ways.

As a practicing vocational rehabilitation counselor in different locations, I have observed that prospective employers, on the average, tend to make all kinds of excuses for not hiring the disabled person. Of course, not all employers were short-sighted and narrow in their view points; in fact, some of these employers were at the other end of the "sighted" spectrum when hiring the handicapped. My personal vocational experiences tend

to support the well-known notion that it isn't mainly what one knows, but who one knows that counts when job hunting.

Finally, it is generally felt that many of the social and vocational problems facing handicapped people do exist, at least in part because of economic priorities in our society.

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Outdoor Education for the Handicapped Project: A Cooperative Program Planning Model.

Recent political and economic events occurring on national, state, and local levels have made it even more apparent that we, as educators, must seek alternative forms of educational programming for the handicapped. The values of outdoor education programs for the handicapped are obvious to all of us; however, it is likely to be one of the first program areas to be a "victim" of administrative budget cuts or, quite possibly, eliminated entirely. As educators, we must ensure that outdoor education will remain an important and vital part of a child's educational experience. It will, therefore, become necessary for us to begin to consider alternatives for funding and maintaining quality outdoor education programs. One such alternative or solution to this problem is to encourage opportunities for others within the community to become involved in the design and implementation of outdoor education programs. The Outdoor Education for the Handicapped Project (OEH) will provide resource personnel with a model to accomplish this task.

The OEH is a three-year research and development project funded to the University of Kentucky by The Office of Special Education, U.S. Department of Education. The primary purpose of the project is to design and develop an instructional program

that will assist educators (including outdoor education specialists, regular and special educators, administrators, and so on), park and resource management personnel (including local, state and national park administrators, program and facility specialists, and so on), and parents/guardians in developing a plan-of-action for designing, implementing, and evaluating outdoor education programs for handicapped children and youths.

Through the use of project developed resources, educators will be able to design and develop outdoor education programs that will address the needs and abilities of all students. In addition, parents will be provided with information on how to support educators and parks personnel in designing appropriate programs for their children, as well as providing specific strategies for follow-up activities in the home environment. Lastly, park and resource management personnel will be furnished with information that will enable them to make their facilities and programs accessible to, and useable by, all handicapped children. Throughout the program model, emphasis is placed on the cooperation and coordination of all three facilitator groups to ensure the inclusion of handicapped children in outdoor education programs.

Lisa Chapman
Environmental Education
Program Coordinator
Frost VAlley YMCA
Oliveria, NY 12462

Kathy Brown
Conference Program Director
Frost Valley YMCA
Oliveria, NY 12462

Wellness and the Handicapped

Frost Valley YMCA Environmental Education Center provides numerous seasonal opportunities for visitors. The conference program, the Environmental Education Program and the summer camp program provide a variety of activities for all age groups. We often host mainstreamed handicapped people as well as handicapped groups. Our summer camp season serves an average of ten campers every two weeks on the kidney dialysis machines, in addition to other campers with kidney problems.

Frost Valley is involved in a year around wellness program. A wellness lifestyle involves living fully and abundantly while recognizing and assuming responsibility for one's health and for the way things turn out in one's life. To involve our audiences

in a wellness lifestyle, we developed six dimensions to the wellness concept. They are: 1) enjoying fitness, 2) eating well, 3) taking care of oneself, 4) enjoying life, 5) relating to others, 6) being a part of the world.

Enjoying fitness encompasses the physical as well as mental and emotional aspects of fitness. For a wellness lifestyle, it is important to make fitness a part of one's life; walking to places, stretching in the morning, skiing, skating, and so on. Keeping fit can be fun by doing activities that one enjoys. Fitness also encompasses the importance of understanding one's body and how it works.

Eating well almost speaks for itself. Many of us are unaware and unresponsive to the nutritional value of what we eat, with the result that, unknowingly, we may be overfed, but undernourished. Taking time to choose foods carefully for their nutritional value and caloric content can provide a healthier diet, and thus a healthier feeling.

The degree to which we use tobacco, alcohol, and drugs measures in part the extent to which we really care about ourselves. Our society promotes an "illness" lifestyle, putting harmful substances into our bodies. It is difficult and we must make a conscious effort to maintain a wellness lifestyle, which goes against the norms of our society. This extra effort is worthwhile because of the positive results it reveals.

Enjoying life extends far beyond participation in recreational activities. A large part of our ability to enjoy life comes from an ability to gain a deeper understanding of who we are and what kinds of things are important to us. It is also important that we learn to relax and enjoy the simple things in life.

As much as we desire love and need people, many of us are scared to death of sharing the love for which we yearn. Our own insecurities make it hard to show our true feelings for fear of getting hurt or rejected. By reaching out to others, the importance of honest relationships becomes evident and appreciated.

Many of us walk through life with little reflection on the beauty and wonders that surround us. Many do not appreciate or understand the natural world and what it provides for us.

People need to create a sensitivity to other people. They need to realize that all of us are in this together, and it is up to us to preserve the natural world.

These six dimensions of wellness are simply guidelines to a way of life that make a person feel good. These concepts are intended to make participants more aware of their individual potential. It is just as important for the handicapped to feel good about themselves as it is for the nonhandicapped.

Diane Eitel
National Center for Barrier-Free Environment
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Recreational Facility Design and Adaptations

The speaker at this session presented design ideas for making outdoor environments accessible to physically handicapped persons. Fundamental design criteria and cost effective solutions for barrier-free recreation facilities were outlined in the lecture and illustrated with slides, photographs, and Access Information Bulletins.

Topics covered were pathways and trails, trail classification systems, picnic facilities, campgrounds, swimming pools, beach access, boat docks, fishing piers, and physical fitness courses.

Interwoven with design criteria were humanistic concerns. Workshop participants were encouraged to provide a range of recreational choices for all persons. A range of activities addressing various degrees of ability offered individuals with disabilities the chance to challenge themselves and define their own limits.

As recreation professionals, facility managers, disabled persons, and concerned citizens, we should all be aware of far-sighted design principles. By working together, we can eliminate environmental barriers, and thereby allow all persons to seek their full potentials.

Mary Ellsworth
Model Secondary School for the
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Facilitating the Disabled in a Field Oriented Marine Science Program

The Marine Science Program for the Physically Handicapped is a five-week program funded by the National Science Foundation, conducted under the auspices of the Marine Science Consortium at Wallops Island, Virginia. The program offers physically disabled students an introduction to marine science, encourages them to pursue courses in science (and possibly a science career), and provides students interaction with college instructors. For the staff, the program offers the opportunity to test techniques for training disabled students in the laboratory and in the field.

Of the approximately 115 students from throughout the United States and Canada who have completed the course, about one-half have come from special schools for the deaf, the blind, and the orthopedically disabled/motor impaired. Most of the rest have come from public high schools. Fifty-six of the students have had hearing disabilities, 29% have been visually impaired, and 15% have been orthopedically impaired. Recruitment has occurred primarily through high school science teachers, with student selection based on a good academic record, expressed interest, and teacher recommendations.

The following are insights from the staff's experience:

1) Total intercommunication among blind, deaf, and orthopedically disabled, and our staff is indispensable. During the first few days of the program all participants share language skills. For example, everyone learns some signs and the manual alphabet, and everyone learns some braille.

2) Sign language does not contain a sufficient vocabulary in scientific and technical concepts. A scientific vocabulary is being built up through agreed upon usage between staff and students.

3) An exceptionally good sign language interpreter/reverse interpreter with thorough knowledge of the subject is essential. The ability of the interpreter to convey concepts accurately and quickly as the instructor lectures is integral in setting the pace and tone of the classroom.

4) Dual media are vitally important. Workbooks and laboratory manuals are duplicated in regular type as are audio cassettes; visual/tactile models are available; films are captioned.

5) Some special arrangements must be made for the wheelchair bound. For example, we have laid snow fencing on sandy and marshy areas to move the wheelchairs across, and ramps were constructed for boarding boats.

6) Adapted maps of the area are important. The maps are used for orientation to the immediate area (on campus) and for orientation to field work sites for both academic and considerations for mobility. The U.S. Geological Survey funded durable braille-tactile maps with differentiation of environments, buildings, and so on.

7) Cooperation and interaction among the deaf, blind, and orthopedically disabled students happen naturally when understanding can be facilitated. An important goal of the program is the gaining of understanding of other people and how they cope with limitations.

8) Students themselves can offer suggestions for making teaching easier and more effective. For example, student suggestions have included brailling herbarium specimens, and making a tactile, dichotomus key for crab species.

A sensitively drawn story of the program has been captured on film in the movie, You Can . . ., produced by NOAA and is a 1980 CINE Golden Eagle Award Winner. For information about obtaining a copy of the film (loan), contact Mrs. G. Weston, Motion Picture Service, NOAA-PA, Rockwell Building, Room 039, 11400 Rockville Pike, Rockville, Maryland 20852.

Ann Girone
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Health Needs of the Handicapped: Medical Aspects of Managing a Camp for the Orthopedically Handicapped

Medical considerations in setting up a camp for the handicapped lie mostly in the physical planning and the personnel chosen to care for the needs of the individuals. Mental health is as important as physical health and is greatly affected by the lack of a barrier-free environment.

Staff training in first aid is a major consideration. Many orthopedically handicapped people lack the musculature to handle a simple episode of choking, and quick action by staff is often necessary.

When setting up an infirmary, it is important to remember that your needs will differ from those needs of a "normal" camp. Standing orders from your camp physician may include Valium injectable for seizure disorders, Adrenaline and Benadryl for allergic reactions, and so on. Also, your supplies should include ostomy bags for urinary stomas and Texas catheters for spina bifida campers without bladder control.

The major emphasis at camp is the involvement of disabled campers in as many activities and experiences as possible. Adaptation is the key word and the medical personnel should be imaginative and willing to accommodate a child's needs to fit certain activities.

Personal hygiene is stressed at camp and campers are encouraged to be as independent as possible. Special shower wheelchairs should be provided and good health habits supported by the counselors.

The goal of camp is to expose the children to a world from which they would otherwise be excluded. Sensitive, supportive staff members can help improve the children's self-concepts and can encourage them to be all that they can be.

Photo by
Sheila Lantz

O.B.I.S. for the Disabled

Jeff Himmelstein
Science for the Handicapped Association
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O.B.I.S. for the Disabled

As a deaf person, I have always felt that as long as my disability is compensated for, I am not handicapped. With this philosophy in mind, I chose to adapt one of the activities of the Outdoor Biology Instructional Strategies (O.B.I.S.) program. While serving as a member of the Special Needs Conference Steering Committee, I remembered a feature film called The Acorn People. The film tells the story of disabled children

in a summer camp setting and how they and their counselors cope with their disabilities in daily situations. One scene shows the group in a pool, and I was surprised to note how well the orthopedically disabled children are able to move around in the water. From that film was born the idea of modifying the Food Chain Game for the Special Needs Conference.

The Food Chain Game is a game stimulation strategy in which children investigate food chains by assuming the roles of animals that are part of a food chain. The children "capture" their prey by chasing after each other. The activity requires plastic bags with markers to serve as the organism's stomach, and the food chain begins with popcorn that represents green plants.

In order to make the Food Chain Game applicable to orthopedically disabled children, I made the following modifications: the activity took place in a pool instead of on the lawn, ping-pong balls were the green plants instead of the popcorn, and I substituted larger plastic bags to serve as stomachs since the size ratio of popcorn to the ping-pong balls does not work with the smaller bags. Simply stated, I tried to compensate for the disabilities so that the participants were not handicapped when they played the Food Chain Game in the pool.

Delta Education, the publisher of the O.B.I.S. program, generously donated all of the materials for the Special Needs Conference sessions. With warm sunny weather, we started the activity. About thirty people showed up for the workshop, but no one was more important than Shirley Smith. Shirley is a biology teacher at Widener Memorial School for the Handicapped in Philadelphia. She was stricken with polio as a child and uses crutches to get around.

I explained the rules of the activity, pointing out that in order for the Food Chain Game to be meaningful, we must not compromise the biological concepts that should develop as the game is played. Good science learning was an important objective. We played several rounds of the game, adding new predators and adaptations, until finally we were able to achieve a food chain with several different kinds of animals that had survived in reasonable numbers.

During the first few rounds Shirley had some difficulty playing the game, since she was the only disabled participant in the group. It was only during the last session that she was successful in surviving. When the activity was evaluated, Shirley pointed out that she was able to survive because she had to think more about what kind of strategy to use, rather than to just rush out and grab the ping-pong balls as the other people were doing. Her personal success was perhaps the best evaluation that we could have received. That showed that the modified Food Chain Game could also be used in a mainstreamed situation as well.

The O.B.I.S. program has over a hundred different activities that incorporate many different strategies that teachers can use to develop good science concepts. Many of them can be easily modified for children with all kinds of disabilities. All we need to remember is to modify the activity so that the disabilities are compensated for. In that way we provide good science learning situations, and not handicaps.

SAVI and SELPH at the Special Needs Conference

The Special Needs Conference was a most appropriate place to present the Science Activities for the Visually Impaired (SAVI) and the Science Enrichment for Learners with Physical Handicaps (SELPH) programs. The workshop of about fifteen enthusiastic educators began with their being blindfolded so that they could role play a blind child and actually use the materials. The materials were developed at the Lawrence Hall of Science at the University of California at Berkeley, under a grant from the Bureau of Education for the Handicapped, United States Office of Education. Through the SAVI activities we expect to develop logical thinking processes and some of the fundamental science concepts that help children become scientifically literate. The children are immersed in a total lab-based learning situation that does not rely primarily on the visual mode as does most ordinary learning situations. The children design experiments, manipulate materials, and

make discoveries while the teachers create the learning situations and direct some of the experiments. The SELPH program uses a multi-sensory approach to learning based on the SAVI materials. SELPH materials have been quite successful with cerebral palsied, orthopedically disabled, and learning disabled children.

At the Special Needs Conference the participants worked with crayfish and were able to discover some of the structures and behavioral characteristics of this invertebrate. They also experienced a chemical reaction by holding a sealed zip-lock bag within which was a vial of vinegar and some sodium bicarbonate. Holding the bag in their palms, they shook up the bag causing the materials to mix. The resulting gas caused the bag to blow up. They could not see what was taking place, but they could feel what was happening. They also could not see the many looks of amazement that appeared on many faces. Clearly, this group was impressed by SAVI.

The SAVI and SELPH programs are available through the Lawrence Hall of Science, University of California, Berkely, California, 94720.

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The Handicapped--An Excellent Resource

We will be walking through the environmental center for about forty-five minutes, going up and down stairs, talking, and viewing exhibits. Is there anyone in this session who has special needs related to those activities?

Handicaps are only the obstacles that don't allow any of us to perform a given everyday task. Very often, things we

do to accommodate the handicapped are the methods we should use for the nonhandicapped. If you are giving a workshop, seminar, talk, hike, field trip, and so on, to an unknown audience, you should inquire about its needs. In attempting to meet needs, you can make the obvious adaptations. For example, look at a deaf person when you are speaking, or provide a partner for a visually impaired person if requested.

There are two major purposes in assessing the needs of your audience : 1) to meet its requests for assistance, if possible, and 2) to emphasize the ability in the disability. Handicapped people are often told that they are unable to do things that they have been doing successfully for years. Handicapped individuals have used coping skills and skills of the nonhandicapped for most of their lives. Each person develops ways to adapt the self and the situation to each other. Ask if individuals are comfortable and willing to share how they actually accomplish an everyday task. A brief description of the mechanisms used for coping in a given situation by a handicapped person will help the nonhandicapped persons in the group to sharpen their own senses and skills. Nonhandicapped people are usually uneasy with any handicapped person. Because of this uneasiness, people avoid contact with the person who is physically different. We need to eradicate these attitudinal problems which promulgate myths, and magnify or create society's prejudices, ignorance, and misinformation about handicapped individuals.

In this workshop, methods, questioning techniques in assessing and meeting individual needs were presented, as well as attention focused on the human relations skills necessary in order to be sensitive to any situation involving the handicapped.

Why is it so important that we make our programs and facilities accessible? One positive experience could turn a "kid" on to a lifetime love--career. The opportunity should be available to handicapped and nonhandicapped alike.

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and Robert S. Shay
Somerset County Park Commission
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Special People--Special Considerations

For park managers who are planning to build or revise a trail for the handicapped, our experiences in developing such a special-use trail at the Somerset County (NJ) Park Commission's Environmental Education Center, Lord Stirling Park, may be of value.

We were often asked if we planned to build a "braille trail," with rails or ropes as guides. The answer was a firm "no." Not because we weren't interested in serving the blind, or others with disabilities, but because after six years of gathering information from all over the nation about what these visitors want and need, we discovered that braille trails are not the answer.

Research done by students at the University of Washington, the New York University, and others, as well as data from the National Park Service and U. S. Forest Service, indicate that braille trails are often useless to the blind. First, braille is read by less than ten percent of those who are blind. Second, braille signs are highly subject to vandalism. Third, most groups and agencies working with the handicapped do not want to "promote" anything that isolates them as a group from society's mainstream. Rope guides and rails also call attention to the handicapped, and are highly subject to vandalism.

Guidelines:

The following suggestions have been offered to us consistently by individuals and organizations representing the blind and otherwise disabled people:

1. Use audio (tape recorder) interpretive devices instead of signs.

2. Use a "differential" trail surface, which by feel and/or sound distinguishes the trail from its surroundings. Avoid railings and ropes.

3. Make the trail safe, without steep inclines or things to trip over.

4. Make the trail very interesting to all the senses of the sighted person and it will be interesting to the blind.

5. Present trail opportunities of different lengths or challenges from which the handicapped person can make his own choice.

6. Do not call specific attention to the handicap.

Accordingly, Lord Stirling Park is developing a special-use trail which when completed, will meet all the above criteria. A sighted person will not be able to tell immediately the differences between it and other trails--by design. The trail will be usable and fun for toddlers, older people, people with handicaps, and all others as well.

Trail Features

Major features of the special-use trail include:

Trail Surface built as boardwalk. The boardwalk will be constructed in 10-foot interconnected sections, each with 3 parallel stringers, spaced 18 inches apart and cross-planked over. A "rub rail" will be provided on each side as a curb. The 1,200-foot (36,000 m) long, 6-foot wide (1.83 m) trail will be a suitable base, perhaps incorporating the existing gravel.

Beds. Much of the trail will be lined with planting beds of varying heights, textures, and smells. (We suggest you enlist the aid of a local garden club in selecting suitable plants for your particular locale.)

Beds will be constructed of pressurized creosote railroad ties and telephone poles ranging from 1 to 4 feet in height, roughly up to 3 feet (.91 m). A well-fertilized soil media of topsoil, sand, and hyperhumus will be used. Necessary water will be pumped from a nearby pond.

Benches. Several low benches, surrounded by asphalt, will be provided. Heavy wooden benches are recommended, but any comfortable weather and vandal-resistant seat will be suitable. The bench will accommodate comfortably two adults. Hollowed-out depressions in many beds will provide rest areas for wheelchair bound persons.

Gazebo. A 15-foot (365 cm) diameter wooden structure, built above a concrete or brick floor, will serve as the trail focal point. Boardwalk ramps will lead to the structure. Under the gazebo, benches and ample room for wheelchairs will be provided. Shelter from excessive heat or sudden showers is essential for citizens who are not at liberty to move quickly from one area to another. Native vines can be trained to grow along the pillars of the open air structure.

Trellis. Since the trail will be partially exposed, without the benefit of wind breaks or mature trees, a trellis of redwood or painted metal rod will flank the gazebo. An assortment of dense native flowering vines will provide shade, pleasant aromas, and also pollen for the park's beehive that will be on display in the nearby Nature Center. Since people will be walking "inside" the vines growing over the trail, there is little chance of anyone receiving bee stings.

Perhaps the key to what we are doing is that we have avoided talking to other park systems and recreation areas that have special outdoor facilities for the handicapped, and have gone directly to the people themselves to ask about their desires and needs. We really haven't done anything particularly innovative. We simply decided to start without preconceived notions, and we were surprised at the kinds of input we got.

Jim Kealy
A. Harry Moore Camp
Branchville, NJ 07826

Our Water Resources: A Field Investigation into our Water Environment, Developed and Adapted for Students with Physical Disabilities.

The goal of this presentation was to introduce activities and techniques for allowing physically disabled youths to get out to natural areas to enhance life experiences, encourage alternate lifestyles and recreation activities, and to foster an interest in natural sciences. Participants in this session explored and shared some of the many field experiences that can be developed and adapted to allow physically handicapped youngsters to study, experience, and play, while learning important skills and concepts related to ecology and the natural sciences.

Our Water Resources

Photo by
Sheila Lantz

It was made clear to participants in this session that environmental educators should develop skills and ideas for adapting an environmental study site to meet the needs and abilities of students with disabilities, without altering the wildness of the site. The safety of all students, and knowledge of both their abilities and disabilities, should be kept in mind when considering adaption of a study site. The site should also be made accessible to all participants in order to key in on the abilities of each student, and to exclude no one from any part of the experience.

Almost any lesson can be adapted to meet the needs of almost any disability. The activities should present an intellectual and physical challenge for all students, and should allow them to experience the study site in its most natural and wild state.

The participants in this session received a fictional list of potential students stating their physical disabilities and some special considerations. This was done to stress the importance of an educator's being provided with this information in advance so that the lesson and site can be adapted accordingly. Disabilities discussed included: cerebral palsy, muscular dystrophy, vision impairment, hearing impairment, and spina bifida. After being provided with a quick overview of the concepts, goals, and activities we wished to accomplish in the lesson, the participants in this session worked together as a group to select and adapt the study site for our fictional students. The criteria used in site selection included: safety, accessibility, and wildness of the site.

Techniques for safe transport, handling and instruction of the students were discussed with the aid of a videotape of an actual lesson conducted with students of varying disabilities. The participants were then disabled to simulate the above students' disabilities, and as we went through the water ecology session, the participants evaluated their decisions with regard to site selection and adaptations.

A qualitative investigation of a lake was conducted by investigating its biotic and physical characteristics.

Poems and pictures from books were used to identify life within the pond, as were microscopes.

The stream was used in a quantity study, and a get-wet-dam-building exercise was done to observe the effects of change in an environment and to enjoy the thrill and magic of a miniature river.

Finally, other concepts such as predator-prey, producer-consumer relationships were introduced in specially developed games and activities that students of all abilities can play. All activities involved crawling, squirting, listening, and feeling so that the concepts became an experience in science and socialization.

Laura Lee Lienk
6699 Springbank
Philadelphia, PA 19119

Environmental Concept Chains--Giving Structure to Outdoor Exploration

Note: Much of this workshop was based on a packet of "Activities for the Special Child--Opening the Environment for Exploration and Enrichment." A number of copies were distributed to workshop participants. Others wishing to obtain copies of the packet may do so by contacting the Schuylkill Valley Nature Center, 8480 Hagy's Mill Road, Philadelphia, Pennsylvania, 19128.

A walk or experience in the out-of-doors should be more than a haphazard wandering. It should be an exciting, participating, learning experience for all involved. Thus, the leader, or teacher, should have a predetermined plan or discovery goal in mind even before the door to the natural world is opened. Predeveloped and personalized concept or experience chains can be a structure that will aid the leader in reaching the desired goal--be it the understanding of an ecological concept, or the development of a sense of awareness of the natural world.

Concept chains are unique to the leader, to the class, and to the area, but they should have the following in common:

1. Start where the learner is--physically, emotionally, and intellectually--and plan to take the learner farther.

2. Involve the learner directly, using the senses, the intellect, and the physical self.

3. Start with a simple concept/premise and expand upon it by giving direct examples from the surroundings.

4. Allow the learner, in a simple manner, to review, rethink, or restate what was learned.

Two concept chains were presented to the workshop participants. The first utilized the sequence of activities on Cards 9 and 10 of the above-mentioned packet--the concept chain theme was Energy. The second chain, Adaptations, took activities from many cards in the packet.

James Merritt
1140 Livingston Avenue
North Brunswick, New Jersey 08902
A. Harry Moore Camp

Gardening Program for Handicapped Children

Enjoyment and understanding of growing plants were the main objectives of this program. Activities and hands-on experience adapted to the needs of the handicapped children were stressed. Topics included were learning about the parts of plants (roots, stems, leaves, flowers, and fruits), how plants grow, plants as food, plants as ornamentals, and plants as protectors of the environment.

Activities included: preparing and mixing soils, planting seeds, conserving soil moisture, transplanting and potting, making rooted cuttings, making terrariums, making vegetable and flower plots, observing plants in natural settings, making a group poem during a woodland walk, growing wheat, grinding flour, baking bread, and making a tossed salad from garden vegetables.

As much hands-on experience as possible was provided. Participants were shown how children in wheelchairs work at potting tables and use hoes and hoses in garden plots. They were also shown how children can help load wheelbarrows, and share in planning and supervising of plantings. Camp counselors were encouraged to participate in the learning-teaching process.

Jim Merritt
New Jersey School of Conservation
Branchville, NJ 07826

Canoeing for the Physically Disabled

Many persons with physical disabilities, especially those confined to wheelchairs, find the outdoors so filled with barriers that it is almost impossible for them to get around. Once in a canoe, they discover a new freedom that allows them to travel any where the waterways will take them.

The most important factor in canoeing with the disabled is careful planning. In addition to the usual considerations for able-bodied people, such as determining the length of the trip, the difficulty of water, and so on, many other things must be carefully thought out. For instance, when paddling with severely disabled persons, a one-to-one ratio of able-bodied to disabled is necessary. The able-bodied assistants need not be expert canoeists, but they should be comfortable in and around the water. They are most useful in helping the disabled board and disembark. In ideal situations a wheelchair can be rolled up to the side of a canoe and the disabled individual can transfer independently to or from the canoe. If the disability is so severe that the person cannot make the transfer alone, assistants can help by lifting the person and stabilizing the canoe. In some circumstances, steep banks with muddy or rocky shores necessitate carrying disabled individuals to and from the canoe. In this case, able-bodied participants must be strong enough to lift the heaviest person without injuring themselves or the person they are assisting.

Once in the water, things become much easier, but the disabled must work out their own adaptations. Those who cannot sit up may have to sit on a cushion in the bottom of the canoe and use a short, lightweight paddle. Others, who have poor balance but are able to sit on a seat, may find the support they need by using a seat with a backrest and by hooking their feet under a piece of webbing attached near the floor.

Although the preparation necessary for canoeing with physically disabled individuals is extensive, the experience is well worth the effort. The ability to explore the outdoors without having to worry about natural barriers is a reward in itself, and a canoe can make this reward possible.

Canoeing for the Physically Disabled

Photo by
Wendolyn Tetlow

Dr. Damon Olszowy
New York Botanical Garden
Bronx, NY 10458

Adaptive Environments and Resources for the Handicapped

There are numerous types of adaptations for teaching science and outdoor skills to the handicapped. These include: 1) material adaptations that take into account the disability of the student--it is often necessary that the teacher adapt or modify the equipment or materials thereby eliminating these barriers; 2) rules or procedural adaptations are necessary so that a handicapped student can participate in the activity; 3) skill sequence adaptations are effective ways to teach a handicapped student by breaking down the task into smaller component steps which are sequenced in a logical order; 4) facility adaptations which include the removal of architectural barriers so that the environmental modifications are as normalizing as possible thereby resulting in mainstreaming; 5) leadup activity adaptations can be used to prepare the handicapped student for full participation in the activity--this is accomplished by using several leadup activities that are chained together to teach specific skills. Guidelines to consider when implementing adaptations in relation to modified programming for the handicapped student are suggested.

Available resource materials are demonstrated and slides are used to illustrate adaptive environments for the handicapped.

A Systematic Approach for Teaching Science Skills to the Handicapped

The systematic approach involves a step-by-step model that can be used by teachers and therapists who work with handicapped students. The system is a guide which attempts to; 1) define the teacher's/therapist's role in the learning process; 2) assess the needs of the handicapped students, including physical, emotional, social and intellectual needs; this step involves the collection of data and the

development of a list of needs on a priority basis; it also involves the recording of the student's current level of functioning as it relates to the needs of students; 3) determine goals and specific learning objectives for students which are designed to bring students one step closer to their goals; it is important that the learning objective be measurable and attainable; 4) assist the teacher/therapist in selecting and designing outdoor educational activities to accomplish learning objectives; the activity is stated as an objective which contains a description of the behavior the teacher wants, the standard minimal acceptable performance, and the conditions which should exist when the behavior is exhibited; 5) serve as an instrument for evaluating students by comparing the students' level of functioning with the learning objective in the model to assess any success; the teacher's technique in developing a measurable and attainable objective can also be evaluated and revised if necessary.

Worksheets, flow-charts, slides, and overhead transparencies are also used to illustrate the model.

Dennis Paporello
A. Harry Moore Camp
Branchville, NJ 07826

Staff Training for a Physically Disabled Population

Special populations require specially trained personnel. Much of the special training can be accomplished in a well-planned and comprehensive orientation program. The program is most successful if the staff can join together for approximately one week, free from outside distractions, and concentrate specifically on the program and the participants they will be assisting.

A program for physically disabled individuals should be based on the same philosophy as a "normal" population with considerations for structural accessibility and the medical and physical problems of those individuals participating. The

content of the program should be similar to that of other groups with specific concern for the background of experience of the participants. Another important consideration is the type and degree of disabilities of the individuals. For instance, are the participants ambulatory, confined to wheelchairs, visually impaired, deaf, and so on. The facilities and terrain must be modified so they can be utilized by the population involved in the program.

Staff selection depends on the emphasis of the program and the type of the population. Suggested areas for canvassing include colleges, high schools, agencies, clubs, and

Staff Training for a Physically Disabled Population

Photo by
Wendolyn Tetlow

associations. Staff members do not necessarily need to possess previous experience, but should have a sincere desire to work with the physically disabled. Following the selection of the staff, special training sessions must be established. For those members without previous experience with disabled individuals, a sensitivity experience would be most appropriate. The purpose of the session is to give staff members more insight and a greater understanding of the problems of the physically disabled. Special sessions must be devoted to medical and physical needs; such areas as medication, dressing, undressing, toileting, eating, bracing, showering, and transferring must be included. Program personnel should also discuss their specific areas. It should be made clear just how the staff members are to be involved with the individuals during specific activities.

Once the program is under way, a line of communication should be instituted whereby the participants, the staff, and the administration can openly discuss concerns, problems, or suggestions. The program should be well-organized, but should allow room for flexibility.

The overall planning of a program for a physically disabled group requires special considerations and special staff training. The obstacles are not insurmountable, and a good program can be instituted if the desire and the knowledge are present.

Robert F. Rogers
North Bend State Park
Cairo, WV 26337

Special Equipment for Special People

The following items were included in my presentation:

1. Planning and construction of a self-guided educational nature trail for all types of physically impaired people. This included a written description of the vegetation in braille and English, and an intercom for answering questions.

2. Softball for the blind, using a beeping ball with cone-type beeping bases.

3. Horseshoes for those in wheelchairs and the blind, using mobile beeping pegs and stirrups.

4. Basketball for those in wheelchairs and the blind; using a beeping tone for location of the basket, and a bell to denote when the player has made a basket.

5. Track--running or jogging for the blind, using a strong cable based on the old clothesline style. A nylon harness is put on the runner with a safety cord attached from the harness to the clothesline, and is used as a pulley to guide. The blind person is able to run, in our case, a 40-yard dash, 80-yard run, as well as relays.

6. Archery for the blind, using light sensor. The blind person can tell when to release the arrow according to the tone he hears in the headset.

Helen Ross Russell
51 Ramona Road
Meyerstown, PA 17067
Environmental Education Consultant

Ten-Minute Field Trips for the Disabled

In this session participants briefly explored the philosophy and advantages of using the school grounds for curriculum enrichment, and the special assets in terms of safety, adaptability, and accessibility for handicapped learners.

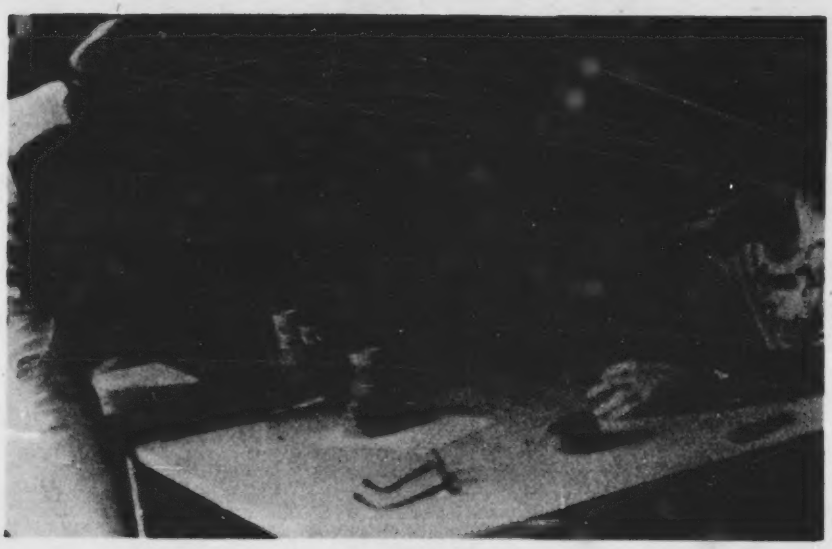
A variety of "blind walks" were used both to tune the group in to using their senses, and to experiencing the limitations, fears, and so on, of life without sight.

In one type of walk no blindfolds were used. One person in each team closed eyes and was led by the other over a

Ten-Minute Field Trips
for the Disabled

Photos by
Sheila Lantz

Clay Experiences for the Blind



variety of terrain. Then roles were reversed. Discussion included fear, trust, and so forth.

In another type of walk the class was divided into two or three lines of ten individuals. "Sighted" leaders led the group over diverse terrain, ultimately forming a circle of the total group. All groups "whooshed" to the center, sat down, found three different plants, then removed blindfolds and shared reactions.

In a third type of walk blindfolded persons were led by voice to trees. They touched and smelled the trees. When all were distributed, the first one was picked up by the leader. Then blindfolds were removed. Group one and leader picked up two others; leader and three picked up four, and so on, until all groups were collected. Then they were told to find their trees by sight (only one person could not).

Other activities included a survey of the driveway. The raised sides are an excellent spot for biological censusing, gardening, and so on, for orthopedically disabled groups. Also mentioned were listening to birds, sitting quietly and letting birds come to the group, shadow study, and lawn quadrant study.

Robert Russell
51 Ramona Road
Meyerstown, PA 17067
Professor of Art
Jersey City State College

Clay Experiences for the Blind

Clay experiences for the blind were hands-on training activities for teachers and supervisors who are primarily concerned with the education of the physically handicapped.

The workshop emphasized the coil, slab and pinch pot techniques for forming and shaping clay. These are the three

major ways of making nonwheel pottery, and are ideally suited for the blind or partially blind person to use clay creatively. These techniques could also be used for teaching handicapped persons with other disabilities.

Blindfolds were used during part of the program so that participants could realize some of the problems confronting a blind potter. I hope that the people who took part in this workshop developed an appreciation for the needs and difficulties faced by the physically handicapped person.

Virginia Stern
Senior Program Associate,
Project for the Handicapped in Science
American Association for the Advancement
of Science (AAAS)
1776 Massachusetts Avenue, N. W.
Washington, D. C. 20036

Mainstreaming Disabled Youths in Out-of-School Science Programs

In this session the speaker discussed how to locate and recruit disabled students for mainstreamed programs in museums, labs, and outdoors.

Virginia Stern also discussed low cost adaptations, technical assistance, and other related problems with mainstreaming disabled youths.

Joann Tusia
54 East 4th Street
New York, NY 10003
United Cerebral Palsy

Creating a Multisensory Stimulation Environment for the Handicapped--The Animal Farm

The session included a discussion on the nature of sensory stimulation, why it is crucial for the handicapped, how animals can fill the sensory gap and provide a fertile environment for therapeutic intervention.

The second part of the session concentrated on allowing for an opportunity for exchange on how to design an animal center: emphasis was placed on the following:

1) working with minimal budgets, 2) dealing with administration, 3) tapping community resources, 4) designing and building structures that accommodate animals comfortably and are accessible to the handicapped, 5) dividing responsibilities for optimum care and upkeep of the facility, the elements of time, attitude, persistence, and follow-up.

Joseph M. Varon
78-12 162nd Street
Flushing, NY 11366
Andrew Jackson High School

Teaching Food Preparation Skills to the Disabled

Cooking is a critical skill if those who are disabled are to achieve an independent style of living.

Teaching Food Preparation Skills to the Disabled

Photo by Sheila Lantz

In this outdoor workshop participants had the opportunity to experience, first hand, various outdoor cooking techniques and procedures which are easily used with disabled children and adolescents. Those who attended this session learned the simple steps in building a fire for safety and simple starting. Procedures were explained in safely setting up an outdoor kitchen area. All had the opportunity to experience various outdoor cooking techniques such as using a camp stove, a dutch oven, toastites, cooking without utensils, solar cooking and aluminum foil cooking. Each method was tried by the group or demonstrated using simple recipes which were distributed to all.

Topics discussed were: safety, nutrition, outdoor cooking management, making a duty roster, menu planning techniques for children, decision making (depending on time, spoilage, budget, and so forth), food preservation tips, recipe reading, portion management and cleanup procedures.

The out-of-doors provides an exciting setting to teach the rudiments of basic cooking skills.

Outdoor Education for the Disabled Through Scouting

Boy and Girl Scouting provides an exciting educational and social experience for youngsters with varied disabilities. It enables them to learn outdoor skills, independent living-survival skills, a reverence and respect for nature, and basic science concepts. Scouting offers youngsters and adolescents a highly structured, yet flexible program in which to learn scout crafts and outdoor skills.

The scouting program has many outstanding features that naturally blend with learning about and enjoying the outdoors. The following is a list of what I feel are its most important features:

1. Scouting provides an excellent program of leadership training to prepare adults in outdoor skills, leadership qualities, and aspects of the scouting program.

2. Scout councils throughout the United States of America own and maintain the finest natural camping and outing areas in the country; here youngsters can have the opportunity to learn and experience the outdoors at first hand. Day hikes, week and overnights and long term camping trips are generally available.

3. The scouting advancement program offers the child "instant recognition" for skills he has learned and projects he has accomplished. Through the scout system of skill awards, merit badges, and ranks, boys and girls are recognized for their achievements. This aspect of the program is extremely important in helping the special youngster improve his personal self-image, and providing the incentive to go on learning other valuable concepts.

4. The outdoor program not only teaches the important environmental and ecological concepts, but prepares youngsters to be functional, productive citizens as well. The program teaches such basic life skills as cooking, cleanliness, helpfulness, team work, safety, first aid, and citizenship--in a fun and unpressured atmosphere.

5. The scouting program offers both leaders and youngsters an invaluable source of literature to assist them in the program. The Scout Handbook, Skill Award pamphlets, and Boys' Life and Daisy magazines are full of outdoor education concepts presented in a way boys and girls can understand and enjoy. Monthly program helps and Scouting Magazine are just a few resources available for scout leaders. Most scout literature is available both in braille and on records or tapes.

6. Scouting is the perfect setting for mainstreaming experiences. At a campfire, lake, camporee, dining hall, and so on, scouts have the opportunity to meet and interact with others, to share skills, experiences and fellowship in the out-of-doors.

In this informal workshop I showed participants the basics of camping and scouting with orthopedically disabled, visually impaired, and retarded children. By using audiovisuals, dis-

tributing reference literature, displaying various materials, answering questions, and moderating group discussion. I hope that participants were able to obtain practical ways to develop an outdoor program for special children in their localities.

Eugene Vivian
Conservation and Environmental
Studies Center, Inc.
120-13 Whitesbog Road
Browns Mills, NJ 08015

New Solid/Toxic Waste Curriculum

Who?

The Conservation and Environmental Studies Center, Inc. has developed a solid waste/energy curriculum for schools with funding by Burlington County C.E.T.A. and a staff of nine persons.

What Kind of Curriculum?

The curriculum is a series of student activities organized in activity card format for grade level clusters of 5-6, 7-9, and 10-12. Teacher-led activities for grade level clusters of grades K-2 and 3-4 are also available. The activity card format allows a teacher to select as few or as many activities as he/she deems desireable.

What Kind of In-Service?

The teachers will receive hands-on-experience and a copy of the curriculum. The sessions will run from one and a half to four hours for 10-25 teachers in any grade level clusters: k-2, 3-4, 5-6, 7-9, 10-12. Cost: no charge for workshops within Burlington County, New Jersey. Workshops outside of the county may be charged mileage.

What's Special About This Curriculum?

Hands-on-Experience
Decision making
Distinguishing sets

Independent and self-contained activities
Learning from direct sources
Communicating with public officials and agencies
Collecting and interpreting data
Extrapolating data
Group activities and group leadership
Exploring values
Reporting to peers
Field Trips
Interdisciplinary and Multidisciplinary activities
Social studies, Sciences, Language arts, Math, Art

What Is In the Curriculum? (sample)

7-9 This consists of four units, each containing five-six task cards.

UNIT A. HISTORY OF SOLID WASTES

1. Digging Up The Past
2. Ask Someone Who Remembers
3. Visiting An Antique Show
4. A Day In The Life Of
5. 1980s: What Lies Ahead?

B. LANDFILLS

1. Introducing The Sanitary Landfill
2. Midnight Dumpers
3. Out Of Space
4. What Good Is An Old Landfill?
5. Everybody's Problem
6. Do You Know Where Your Trash Is?

C. HAZARDOUS WASTES

1. Hazardous Waste Is . . .
2. Disposal Dilemma
3. Hazardous Wastes; Harmful Or Healthy?
4. Love Canal, Lethal Litter
5. What Can You Do?

D. WHAT IF WE . . .?

1. Return To Returnables Or Recycle Glass
2. Source Separate?
3. Recycle Steel, Aluminum And Glass?
4. Burn Garbage For Energy?

W. Kent Winchester
Dave Templeton
Larry Quinsland
Outdoor Experiential Education Program
Rochester Institute of Technology
National Technical Institute for the Deaf
(NTID/RIT)
1 Lomb Memorial Drive
Rochester, NY 14623

Outdoor Experiential Education for the Hearing Impaired

Program Overview:

Personal growth outdoor trips and expeditions that follow experiential education principles are offered to students and faculty at Rochester Institute of Technology in the College of the National Technical Institute for the Deaf (NTID) to assist in the acquisition of specific personal/social skills. The use of the wilderness as a medium for personal growth is not a new concept as evidenced by the fact that Outward Bound has been in operation for more than forty years. But, the incorporation of outdoor education into formal curriculum of an educational institution with deaf and hearing students is a novel concept.

The Processing Component:

This section of the workshop involved participants in the consideration of "processing" which is the key to any experiential learning strategy. "Processing" was discussed in theory as well as practice. Participants had the opportunity to learn various "processing" techniques, including the use of journals. An effort was made to relate these activities to the educational background of each participant.

Special Planning and Safety Considerations:

The Outdoor Experiential Education Program is currently expanding to the other nine colleges of Rochester Institute of Technology. To insure safe, quality programming, we continue to require intensive instructor training, reasonable, yet thorough participant preparation, careful equipment selection, and consideration for special risk management issues. This final component encourages schools and organizations to adopt special planning strategies for hearing impaired participants in ongoing programs.

PANEL DISCUSSION: Mainstreaming the Disabled

Panelists shared with conference attendees various approaches to integrating the disabled into science programs at their schools and centers.

Laura Lee Lienk, moderator, suggested such topics as how to develop staff, and where to reach for help in order to do so. Interacting with the participants, the panelists recommended that teachers, directors, and key program personnel at centers should be aware of the needs and problems of the disabled, but they should focus on their own fields, and let the disabled speak for themselves.

Panelists and conference participants suggested making use of county and state health organizations that assist with special populations, and to make use of community volunteers. They also suggested that teachers, directors, and key program personnel use environmental education centers for staff development and as field centers for the disabled.

The following presentations, listed alphabetically, are brief summaries of the panelists' experiences with programming science for the disabled. If you have further questions, please contact the panelists directly.

Russell Heyde
Supervisor, Outdoor Education
Anne Rundel County Public Schools
975 Indian Landing Road
Millersville, MD 21108

I am the supervisor of the Outdoor Education Program in the Anne Rundel County Public school system. This system is the twenty-sixth largest school district of 18,000 school systems in the country. There are 70,000 students in our district.

We own a residential center, lease another center, and operate two centers for day trips. In all, 20,000 students are involved in our outdoor programs every year.

All special populations within the school system, except the profoundly handicapped, are involved in the program. We have overnight facilities for preschool orthopedically handicapped up through twenty-one-year olds. Although we are not totally accessible, we offer the best we can. And we have an outstanding group of teachers who go beyond the call of duty.

What makes our center different from others is that we teach special population teachers the skills they need to work with their students at our centers. We feel that the special populations children are no different from other children. We educate their teachers to make them feel comfortable in the outdoors just as we would teachers of able-bodied children. Once the teachers have been to our center, they keep returning with their children.

We also operate a Youth Conservation Corps camp (YCC) that has a population of 30% hearing impaired youths. For these youths we have two interpreters on duty all the time. The 70% hearing children are required to take sign classes each evening during their residency; therefore, there is total communication between the two groups. For our work with the hearing impaired, we have attracted national attention. We have received recognition from the Office of Education and the Office of the Secretary, U. S. Department of the Interior for mainstreaming the hearing impaired into the YCC program.

The success of our programs and activities has been widely publicized, including television coverage. The image we maintain with the public is a positive one, and we frequently have requests for information about our programs. If you would like printed material about our programs, please feel free to contact me at the address above.

Melodee James
149 Knox Street
Albany, NY 12208
Outdoor Education Specialist

For the past two years I have been the Outdoor Education Specialist for Orleans-Niagara BOCES Project WOODS. WOODS stands for We're Only Outdoors Developing Skills. This program serviced 250 students, ranging in age from five to twenty-one, with handicaps such as speech impairment, hearing impairment, mental retardation, learning disability, and emotional disturbance.

The program emphasized the development of social and survival skills, sensory skills, gross/fine motor skills, problem solving, academic skills as well as leisure time activities. The program consisted of monthly classroom and on-site visitations by the educator. This was supplemented by teacher packets of outdoor lessons to be taught by the teacher. Frequent field trips were also possible due to the purchase of two mini-buses through the grant. The buses were accessible to all teachers who participated in the bus driver training programs.

Some of the highlights of the Project WOODS Program were the following: a five-day canoe trip in the Adirondacks with ten E. D. boys; a tour of Buffalo at night; wild foods cooking; on-site daytime campout with primary TMRs; and guest visitors such a beekeeper, a taxidermist, and senior citizens who shared their life histories.

Throughout the two years there were some surprises. We discovered that snowshoes helped children with cerebral palsy walk with greater balance because the snowshoes widened their stances. We learned that many children had never been to a shopping mall, and that campers on a canoe trip eat anything and everything, including green spinach spagetti.

The curriculum developed for Project WOODS was set up on a monthly thematic basis. It was designed to be used with primary through secondary students of all disabilities. The curriculum will be available for purchase in the fall of 1981. For more information, writ to: Lynne Gang, Orleans-Niagara BOCES, 4124 Saunders Settlement Road, Sanborn, NY, 14132.

Laura Lee Lienk
Environmental Educator
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For those of you who don't already know me, I've been involved with the Schuylkill Valley Nature Center in Philadelphia. We have a program for special educators that has been supported for six years by the Widener Foundation in Aid of Handicapped Children. This program involves the training every summer of twenty-five teachers of the physically and mentally handicapped. They come for two weeks to the Center and earn six credits from The Pennsylvania State University. These courses provide a background in basic ecological and environmental principles, and help teachers develop activities and lessons specifically for their children.

In addition to our summer program, we also offer nine workshops throughout the school year for special educators. Themes of these workshops range from learning to use weather instruments, to learning about transportation facilities for the disabled. From these workshops educators earn an additional three credits from The Pennsylvania State University.

After the first three years of the Widener program, seventy-six activity cards were created which can be used by the special educators either at the Center or in the environment near their own schools. The second cycle of the six-year Widener program is now coming to a close--another seventy-five teachers have been trained, and activity cards are being created (see presentor Laura Lee Lienk, "Concept Chains--Giving Structure to Outdoor Exploration").

Educators who bring their groups to our Nature Center take advantage of our facilities which are totally handicapped accessible. Perhaps the most unique of the Nature Center's facilities is the Widener Trail. This one-quarter mile hard surface pathway is equipped with radio broadcast system buried in the pavement which makes the trail self-guiding. Using earphones, visitors learn through pre-recorded message, about the area's history as well as ecological

communities surrounding the area. A nearby pond is equipped with a deck so that the wheelchair bound can easily conduct aquatic studies. Other features of the Widener Trail for the disabled include a braille guide and organic garden and compost pile.

Although Schuylkill Valley Nature Center offers many learning opportunities for able-bodied and disabled children, and special educators, it also offers programs for senior citizens. These programs include sensory walks, natural history lessons, sessions on basic ecological concepts, and organic gardening. If you would like further information about any of our programs and activities, please write to: Schuylkill Valley Nature Center, Hagy's Mill Road, Philadelphia, PA, 19128.

Ford Parker
Frick Park Nature Center
2005 Beachwood Boulevard
Pittsburgh, PA 15217

The Frick Park Nature Center is the only nature center within the city of Pittsburgh structurally designed with the needed flexibility to provide both a drop-in visitor's center, and an outdoor education activities center for special populations. From this "flexibility" evolved two major concerns. First, how should the Center's display system be designed to best meet the needs of special populations; second, what sort of activities should the center offer.

As a visitor's center, constructing nature-oriented displays to satisfy all persons seemed an impossibility. But, after researching this problem, a few basic principles of learning aided in ruling out many preconstruction fears. These principles are as follows :

1) The teacher does not dictate what one should learn; moreover, the teacher provides exciting learning situations that motivate the participants to learn on their own levels and to their own abilities.

2) We all live in a world of vivid sensory impressions and, therefore, we have the desire to utilize what senses are provided us.

3) Active involvement with an object or subject both mentally and physically stimulates learning.

4) Limits on creative displays, like labels, are self-conceived.

5) Start where the learner is and not where you are; don't imagine what it would be like to explore a display from a wheelchair--get in one and find out.

6) Allow for representatives of various populations to be involved in research, planning, development, and evaluation.

Providing outdoor education activities, as with the development of a visitor's center, also requires considerations. Again there are some rules of thumb to assist the teacher. These principles are as follows:

1) People have more in common when emphasis is placed on their abilities and not the disabilities.

2) The growth of plants is a result of the sun's energy. The growth of a student is the result of a teacher's energy.

3) We are all people first and students second, each of us with our own needs, desires, and concerns.

4) Adapt to a given situation and don't let the situation be forced to adapt to you.

5) Activities will only have limitations when we forget the word adaptation.

6) Whenever possible, plan and evaluate an activity with the participants.

Many of these principles are well known and practiced, and I'm sure there are many I neglected. To explore and expand further the Frick Park Nature Center's displays and outdoor education activities, however, I have removed one word from my vocabulary--limitations. When a situation appears impossible, just recall learning to swim for the first time--a dangle of the toes in the cold water, a shiver, a jump, coughing and floundering. But it was all worth it, and you did it better and with more enjoyment each time.

Edith A. Sisson
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Massachusetts Audubon Society

The Massachusetts Audubon Society is an independent conservation organization in Massachusetts that is very active in the fields of public information, research, and education. This past spring for the first time we became involved in a program for the handicapped. It operated under a grant from the National Science Foundation, and its goal was to give the handicapped from the Boston area the opportunity to develop the potential for science careers. Because of that program, I became more aware of the needs of the disabled, and now I would like to encourage Massachusetts Audubon to try to meet better these needs.

I also became aware, however, that during the thirteen years I have worked at Massachusetts Audubon, our staff has been meeting the needs of all kinds of people, disabled and able-bodied. Much of our meeting these needs has been common sense, and just being sensitive to others. We have had groups that were blind, some hearing impaired, and others in wheelchairs. With the blind, for instance we could "blow" all the rules by letting them feed the cows from their hands, and touch the woolly coats of the sheep. And with a group of four and five-year-olds, no one had to tell us to wait for the dwarf among them--the kids themselves told us to wait, and consequently made us more aware of the child's needs.

At Massachusetts Audubon we also have a program that I initiated some years ago which encourages the elderly at nursing homes to visit Drumlin Farm, the most active of Massachusetts Audubon's fifteen sanctuaries. At this 220-acre demonstration farm, we permit the elderly to drive their vehicles around the grounds so they can get closer to the animals. For those who are not ambulatory, we have animals (in particular, a trained goat) that can be taken into a van where the disabled can then pat the animal and see it up close. Although not completely accessible to the disabled, Drumlin Farm offers a variety of activities for those who are able to participate. These include cow milking, animal talks, and sheep shearing. Doctors have told me that by enabling the elderly--some of whom have farm backgrounds--to visit our farm, we are doing more for them than all the medication the doctors can give them.

We also have a program at Massachusetts Audubon that reaches out to the public schools to teach kids science and conservation. This is one way of reaching the handicapped kids who are mainstreamed. In a sense, then, Massachusetts Audubon is accessible to both able-bodied and disabled, both formally and informally. And part of this accessibility is intuitive--being sensitive to others.

If you are interested in further information about Massachusetts Audubon's programs and sanctuaries, please contact Massachusetts Audubon Headquarters, Lincoln, Massachusetts, 01773.

GUEST SPEAKER: Dr. Martha Ross Redden
Director, Office of Opportunities in Science
Project on the Handicapped in Science
American Association for the Advancement of Science (AAAS)
1776 Massachusetts Avenue, N. W.
Washington, D. C. 20036

Conference Overview

Dr. Redden began the overview by saying that most disabled persons know how to survive very well in a number of situations, including in the out-of-doors. As an example, she told of Ed Roberts, State Director of Vocational Rehabilitation in California, who enjoys white water rafting, and Cheryl Davis, a consultant in Housing for the Disabled, who traveled across America in her van, camping out along the way. Mr. Roberts is a quadriplegic who requires the use of a respirator through the day and sleeps in an iron lung at night. Ms. Davis has spina bifida and uses a wheelchair. Dr. Redden gave several other examples of disabled people who enjoy the out-of-doors and have learned simple accommodations that enable them to participate in the same activities as able-bodied people.

Persons who wish to share science experiences with disabled individuals must acknowledge them as the best resources for ways to accommodate and by-pass their disabilities. What the disabled person may not have that you have to offer is the knowledge of science and access to numerous experiences in the out-of-doors, in museums, and in exploring the universe. So, what we must learn is to include disabled persons in all of the activities that we sponsor, and to share with them the expertise of our own fields, and to allow them to assist us in making whatever accommodations are necessary to allow them this full participation.

Dr. Redden reminded the conference participants that they are the experts in their own rights, and that the coping strategies necessary to include disabled persons have been discovered by persons within the group. The knowledge of these coping strategies must be shared with each other.

Dr. Redden first asked the participants of the group to state problems they found in working with disabled persons. The following issues were raised by the conference participants :

- educating the public to accept the presence of the physically disabled

- attracting the disabled to already existing programs

- ensuring that institutions working with the disabled have proper liability coverage

- insisting that parking spaces are reserved and protected for the disabled

- dealing with complaints from the public about too much money being spent on special education

- finding additional funds for transportation once funds for special activities are secured

- learning to cope with risk-taking, both for the able-bodied and disabled

- learning to overcome general discrimination against the disabled

Dr. Redden acknowledged that these issues were certainly serious, and then asked that members of the group who had dealt successfully with just such issues share their experiences. Several of the group did comment, and it was clear that within the group, coping strategies had been developed to deal with each problem. Dr. Redden then asked the group to comment on activities that they planned to accomplish upon their return home because of new knowledge or insights they had gained at the conference. The following action plans were shared by participants :

- "get to know a wider variety of disabled people, both children and adults so that there will be more ease in interacting with disabled people in my programs"

- "not take No for an answer when I wish to include the disabled youth I teach in science activities"

- "contact the blind man who I have learned about at the conference, who is active in the Audubon Society, to consult with the Society on ways to include more disabled persons in all of its activities"

- "learn sign language so that I can communicate better with the deaf students who come to my Center"

- "see that the disabled student who will be in my science class this fall receives the same high quality of education as all the other students in the class"

- "invite blind persons to assist me in preparing the nature trails for the blind at my Center"

- "publish articles about disability in the publication for which I am responsible."

Dr. Redden again pointed out that each person at the conference had skills worth sharing, and encouraged the group to correspond with each other after leaving the conference.

She also pointed out that the AAAS had developed many resources for increasing participation of disabled people in science. The most valuable of these is the Resource Group of Disabled Scientists that numbers over 1,000 individuals across the country who are willing to consult with others in areas of their science expertise, and in ways to include disabled people in all aspects of science. She encouraged the group to call the AAAS, Project on the Handicapped in Science with any specific question or problem, and also with news of activities that included disabled persons. Dr. Redden closed the overview by saying that it had been simple things happening to her in the outdoors that changed her life, and that it can be true of all people, able-bodied and disabled, if everyone is given the opportunity to experience the natural world.

In closing, she told of an experience of Dr. Phyllis Stearner's. This experience can be a lesson to each of us. Dr. Stearner was born with cerebral palsy, and has used a wheelchair to get around all of her life. As a child, she was not allowed to go to school but busied herself many hours each day with science projects. One of her projects was to collect insects in jars that she kept on the back porch. One insect she had was a bumblebee. As she watched the bee, she became quite fascinated with it. Her father brought a book to her from the library about bumblebees, and from that book she learned that, according to the laws of aerodynamics, the bee was not supposed to be able to fly. Yet, as a little child, Phyllis watched

it fly many times, and concluded after reading the story that, just as the bee was not supposed to be able to fly, so she was not supposed to be able to accomplish her goals because she was disabled. But she saw the bee fly and she became determined to accomplish her goals--to become a scientist. She has successfully worked as a research biologist at the Argonne National Laboratories for over thirty years.

"What we must learn is to include disabled persons in all of the activities we sponsor, and to share with them the expertise of our own fields . . . "

Dr. Martha Ross Redden

Photo by
Sheila Lantz

Conference Evaluation

This report summarizes the findings of the Conference Evaluation, which aimed to assess strengths and weaknesses and to obtain suggestions for future conferences. Of the 109 participants and 40 presentors who received evaluation forms, 102 (68%) completed and returned them.

Assessment of conference strengths and weaknesses was performed by analysis of responses to each of 36 key items concerning program, facility, field trips, and special events. These key items were presented in the form of descriptive statements to which respondents agreed or disagreed according to a five point scale. Average response scores, ranked and tabulated, are shown in Table 1. Scores ranged from 3.62 to 4.75. The highest ranked items, scores that fall in the upper third of the range, are regarded as strengths. The lowest ranked items, scores that fall in the lower third of the range, are regarded as weaknesses. These results are compiled in Table 2.

In general, respondents had a highly favorable feeling about the conference, and found the facilities and meals satisfactory, workshop leaders knowledgeable, and the staff friendly. Events which received high ratings included ASEs, the keynote address, and field trips. On the other hand, respondents gave lower ratings to items concerning the registration materials, press release, and participant interaction in workshops. Events which received low ratings included the poster session, soapbox sessions, and the slide-sharing sessions.

Suggestions for future conferences were elicited by providing blank space on the evaluation form. Written comments were compiled and listed without editing topic by topic within each of three broad categories: general and concurrent sessions; overall conference and facility; and exhibits, field trips, and other events.

Suggestions which appeared most frequently among respondent's written comments are the following:

- workshop format should include more hands-on experience
- information about participants' affiliation and interests should be made available at the beginning of the conference
- outdoor evening programs should have more variety.

Table 1

Mean Scores and Ranks of Descriptive Statements

Item Number	Item (key words)	Mean Score	Rank
1.	ASEs should be included in future workshops	4.66	4
2.	Topics for panel discussions were well chosen	3.95	23.5
3.	Content of orientation session was valuable	4.01	20.5
4.	Keynote address got conference off to good start	4.64	5
5.	Session topics relevant to interest	4.01	20.5
6.	Workshops offered practical ideas	4.21	15.5
7.	Workshop leaders knowledgeable and friendly	4.46	9.5
8.	Pairing of concurrent workshops effective	3.85	29
9.	Length of workshops adequate	4.04	17.5
10.	Presentors made workshops interesting	4.04	17.5
11.	Degree of participant interaction about right	3.71	32
12.	Conference has been professionally stimulating	4.46	9.5
13.	Overall feeling about conference is good	4.57	7
14.	Conference facilities adequate	4.26	12
15.	Lodging satisfactory	3.95	22.5
16.	Meals satisfactory	4.53	8
17.	Workshop location good	4.58	6
18.	Conference sufficiently explained in brochure	3.90	27
19.	Pre-conference materials adequate	3.99	22
20.	Registration for conference was easy	4.67	3
21.	Workshop sessions accurately described in registration materials	3.33	35
22.	Workshops had right number of participants	3.87	28
23.	Sufficient free time available	3.60	33
24.	Press release useful	3.73	31
25.	Time was well invested	4.68	2
26.	PEEC staff friendly and courteous	4.75	1
27.	Exhibits relevant to conference theme	4.25	13.5
28.	Sufficient handout materials	3.91	26
29.	Handout materials useful	4.25	13.5
30.	Slide-sharing session worthwhile	3.74	30
31.	Poster session worthwhile	3.28	36
32.	Sufficient choices for field trips were available	4.02	19
33.	Soapbox sessions were informative	3.53	34
34.	Field trips offered were good ones	4.43	11
35.	Cultural and social events were well chosen	4.21	15.5
36.	Evaluation is adequate	3.93	25

Table 2

Conference Strengths and Weaknesses

Strengths:

Score	Statement (key words)
4.75	PEEC staff friendly and helpful
4.68	Time was well invested
4.67	Registration was easy
4.66	ASEs should be included in future
4.64	Keynote address got conference off to good start
4.58	Workshop location good
4.57	Overall feeling about conference good
4.53	Meals satisfactory
4.46	Conference professionally stimulating
4.46	Workshop leaders knowledgeable and friendly
4.43	Field trips were good ones
4.26	Facilities adequate

Weaknesses:

Score	Statement (key words)
3.28	Poster session worthwhile
3.33	Sessions accurately described in registration materials
3.53	Soapbox sessions informative
3.60	Sufficient free time available
3.71	Degree of participant interaction about right
3.73	Press release useful
3.74	Slide-sharing session worthwhile

Exhibitors

Accent Special Publications
Box 700
Bloomington, IL 61701

Alexander Graham Bell
Association for the Deaf, Inc.
3417 Volta Place, N. W.
Washington, D. C. 20007

Allied Services
475 Morgan Highway
Scranton, PA 18508

American Association for the
Advancement of Science
Project on the Handicapped in
Science
1776 Massachusetts Ave., N. W.
Washington, D. C. 20036

American Academy for Cerebral
Palsy
University Hospital School
Iowa City, IA 53340

American Association for Health,
Physical Education and Recre-
ation
1201 16th Street, N. W.
Washington, D. C. 20036

American National Standards
Institute
1430 Broadway
New York, NY 10018

American Occupational Therapy
Association
6000 Executive Blvd.
Rockville, MD 20852

American Printing House for
the Blind
1839 Frankfort Avenue
Louisville, KY 40206

Boy Scouts of America
P. O. Box 61030
Dallas/Fort Worth Airport, TX 75261

Buffalo and Erie County Girl
Scout Council
70 Jewett Parkway
Buffalo, NY 14214

Children's Museum
Museum Wharf
300 Congress Street
Boston, MA 02210

Educational Facilities
Laboratories
A Division of Academy for
Educational Development
New York, NY 10019

Everest and Jennings, Inc.
1803 Pontius Avenue
Los Angeles, CA 90025

Five Rivers Environmental
Education Center
Department of Environmental
Conservation, New York State
Game Farm Road
Delmar, NY 12054

Helen Keller International, Inc.
22 West 17th Street
New York, NY 10016

High Rock Park Conservation Center
200 Nevada Avenue
Staten Island, NY 10306

The Light House
111E. 59th Street
New York, NY 10022

Medic Publishing Company
Drawer O
Issaquah, WA 98027

Ministry of the Environment
Information Services Branch
135 St. Clair Avenue West
Toronto, Ontario

Muscular Dystrophy Association of America
810 7th Avenue
New York, NY 10019

National Amputation Foundation
12-45 150th Street
Whitestone, NY 11357

National Association of Hearing and Speech Action
814 Thayer Avenue
Silver Spring, MD 20910

National Association for the Visually Handicapped
3201 Balboa Street
San Francisco, CA 94121

National Center for a Barrier Free Environment
Suite 1006
1140 Connecticut Avenue, N. W.
Washington, D. C. 20036

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, IL 60612

National Library Service for Blind and Physically Handicapped
Library of Congress
Washington, D. C. 20542

New York State Education Department
Chatauqua County BOCES ASEIMC
Fredonia, NY 14063

New York State Education Department
c/o Yonkers Board of Education
Yonkers, NY 10701

National Science Teachers Association
1742 Connecticut Avenue, N. W.
Washington, D. C. 20009

Oglebay
Wheeling, WV 26003

Outdoor Education for the Handicapped Project
403 Bradley Hall 00587
University of Kentucky
Lexington, KY 40506

People to People Committee for the Handicapped
Suite 1130
1522 K Street, N. W.
Washington, D. C. 20005

The President's Committee
On Employment of the Handicapped
Washington, D. C. 20210

Rhinecliff Union Free School
District
Morton Road
Rhinecliff, NY 12574

Rogers Environmental Education
Center
Department of Environmental
Conservation, New York State
Sherburne, NY 13460

Science for the Blind Products
Box 385
Wayne, PA 19087

Trenton Psychiatric Hospital
Trenton, NJ 08628

United Cerebral Palsy Association
111 W. 57th Street
New York, NY 10016

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